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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,936	12/29/2004	Chao-Nan Xu	2004-2055A	5091
513	7590	11/21/2006	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.			KOSLOW, CAROL M	
2033 K STREET N. W.			ART UNIT	
SUITE 800			PAPER NUMBER	
WASHINGTON, DC 20006-1021			1755	

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/519,936

Applicant(s)

XU ET AL.

Examiner

C. Melissa Koslow

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/29/04</u> . | 6) <input type="checkbox"/> Other: ____  |

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The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

The Japanese references cited in the information disclosure statement of 29 December 2004 have been considered with respect to the provided English abstracts.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 6,117,574.

This reference teaches a mechano- or triboluminescent phosphor having the formula  $\text{ZnS:M}$ ,  $\text{ZnO:M}$  or  $\text{CdS:M}$  where the amount of M is 0.01-10 wt% and M can be Mn, Eu, Cu, Fe, Co and Ni. This formula can be rewritten as  $(1-x)\text{QA} \cdot x\text{MA}$ , where x is less than 1, which the weight percentage is converted to atomic percentage, and QA is ZnS, ZnO and CdS. Examples 2, 3, 7 and 8 teach phosphors having the formulas  $\text{ZnS:Cu}$ ,  $\text{ZnS:Eu}$ ,  $\text{ZnO:Eu}$  and  $\text{ZnO:Mn}$ , where the amount of the dopant is 5 wt%. These formulas can be rewritten as  $0.95\text{ZnS} \cdot 0.05\text{CuS}$ ,  $0.91\text{ZnS} \cdot 0.09\text{EuS}$ ,  $0.9\text{ZnO} \cdot 0.1\text{EuO}$  and  $0.96\text{ZnO} \cdot 0.04\text{MnO}$ . This reference teaches the claimed phosphors.

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Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by U.s. patent 4,374,037.

This reference teaches a phosphor having the formula  $\text{CaS:Eu}$ , where the amount of europium is 1 mol%. This phosphor can be rewritten as  $0.99\text{CaS} \cdot 0.01\text{EuS}$ . This reference teaches the claimed phosphor.

Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 3,178,611.

This reference teaches mechano- or triboluminescent phosphors. These phosphors have the formulas  $\text{ZnS:Mn}$ ;  $(\text{Zn,Cd})\text{S:Mn}$ ,  $\text{ZnS:Mn,Cu}$  and  $(\text{Zn,Cd})\text{S:Mn,Cu}$ . It is well known in the art that the amount of the activators Mn and Mn and Cu is less than 100 mol% of the composition. These phosphors can be rewritten as  $(1-x)\text{ZnS} \cdot x\text{MnS}$ ,  $(1-x)(\text{Zn,Cd})\text{S} \cdot x\text{MnS}$ ,  $(1-x)\text{ZnS} \cdot x(\text{Mn,Cu})\text{S}$  and  $(1-x)(\text{Zn,Cd})\text{S} \cdot x(\text{Mn,Cu})\text{S}$ , where the amount of if x is less than 1. The reference teaches the claimed phosphors.

Claims 1, 2 and 4 is rejected under 35 U.S.C. 102(b) as being anticipated by U.s. patent 2,541,384.

This reference teaches a  $\text{ZnS:Cu}$  phosphor having a mixed structure of both a wurtzite phase and zincblende, or sphalerite, phase. This phosphor can be rewritten as  $(1-x)\text{ZnS} \cdot x\text{CuS}$ , where x is less than 1, since it is clear from the reference that the phosphor is not 100%  $\text{CuS}$ . The reference teaches the claimed phosphor.

Claim 4 is allowable over the cited art of record.

The claimed process is not taught or suggested by the cited art of record.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk  
November 17, 2006

  
C. Melissa Koslow  
Primary Examiner  
Tech. Center 1700